

**SHRI T P BHATIA JUNIOR COLLEGE
FIRST SEMESTER EXAMINATION 2023**

DATE:- 25/10/2024
CLASS:- XI (ALL DIVISIONS)

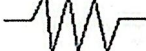
TIME:- 3 Hours
MAX MARKS:- 50

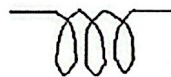
Q1. Fill in the blanks rewrite the sentences.

10 Marks

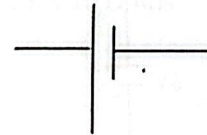
1. _____ is a good conductor of electricity .
 - a. Plastic
 - b. Gold
 - c. Rubber
2. Absence of fourth band means resistance tolerance of _____
 - a. $\pm 5\%$
 - b. $\pm 10\%$
 - c. $\pm 20\%$
3. The unit of Current is _____
 - a) Coulomb
 - b) Ampere
 - c) Volt
 - d) Watt
4. A capacitor consists of _____
 - a) Two conductors
 - b) Two semiconductors
 - c) Two dielectrics
 - d) Two insulators
5. The symbol used for inductance is _____

A) 

B)  C)



D)



6. For a transformer with primary turns 100, secondary turns 400, if 200 V is applied at primary we will get _____
 - a) 3200 V at secondary
 - b) 1600 V at secondary
 - c) 800 V at secondary
 - d) 80 V at secondary
7. Capacitor is a device used to _____
 - a) store electrical energy
 - b) vary the resistance
 - c) store magnetic energy
 - d) dissipate energy
8. When two 10 ohm resistors are connected in parallel connection then what will be the resistance value?
 - a) 20
 - b) 5
 - c) 15
 - d) 25
9. What is the function of a transformer?
 - a) Transformer is used to step down or up the AC voltages and currents
 - b) Transformer is used to step down or up the DC voltages and currents
 - c) Transformer converts DC to AC voltages

10. Capacitance increases with _____
- Increase in plate area
 - Decrease in plate area
 - Increase in distance between the plates
 - Increase in density of the material

QIIA. Answer any six of the following

6 marks

- What is the tolerance of the silver stripe ?
- What is the unit of power?
- What will be the ohmic value of the resistor having a color code of orange, orange, orange?
- State Maximum Power Transfer theorem.
- When does the VDR or varistor conduct?
- Which resistor detects light?
- What is the unit for inductance?

QIIB. Answer any one of the following.

4 marks

- What are linear and non linear resistors ? Explain all the non linear resistors.
- Draw the resistor family tree .

QIIIA. Answer any two of the following.

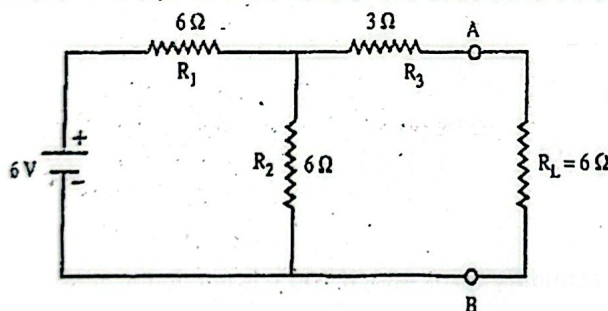
6 Marks

- Name the different types of inductor cores.
- What is mutual inductance?
- State Superposition theorem and write down the steps .

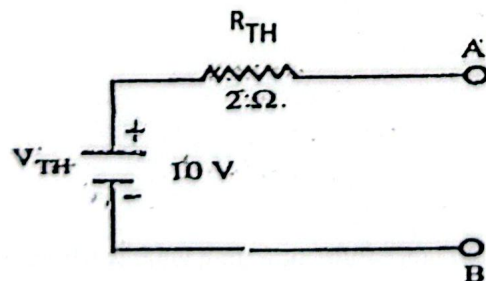
QIIIB. Answer any one of the following.

4 marks

- Find the Thevenin's equivalent circuit of the circuit shown below.



- Convert the given Thevenin's equivalent circuit to Nortons equivalent circuit.



QIVA. Answer any two of the following.

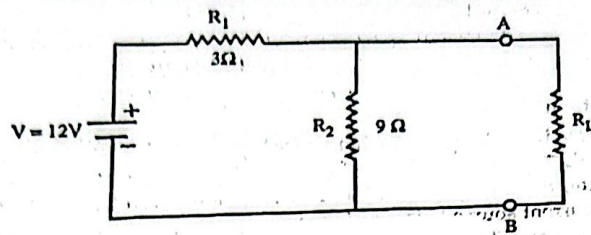
6 Marks

- State KVL and explain its sign conventions.
- Define Capacitance . What are the factors affecting capacitance.
- Name the different types of switches.

QIVB. Answer any one of the following.

4 Marks

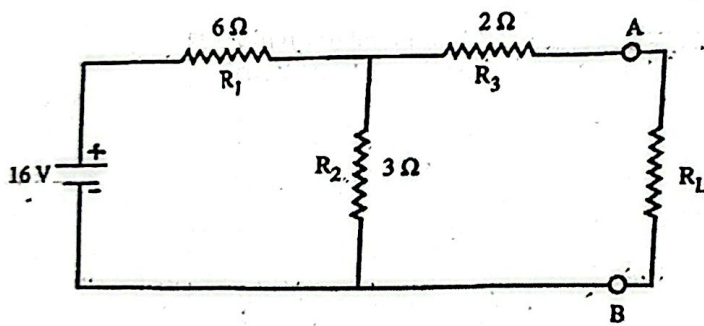
1. Explain the working principle of Transformer .
2. Find the Nortons equivalent circuit for the following circuit.



QV. Answer any Two of the following.

10 Marks

1. Explain the working and construction of relays.
2. In the circuit in calculate the value of R_L which will give maximum power output. Which theorem will be applicable ?



3. Explain the resistor colour code. Also explain the colour code for resistances below 10 Ohms.